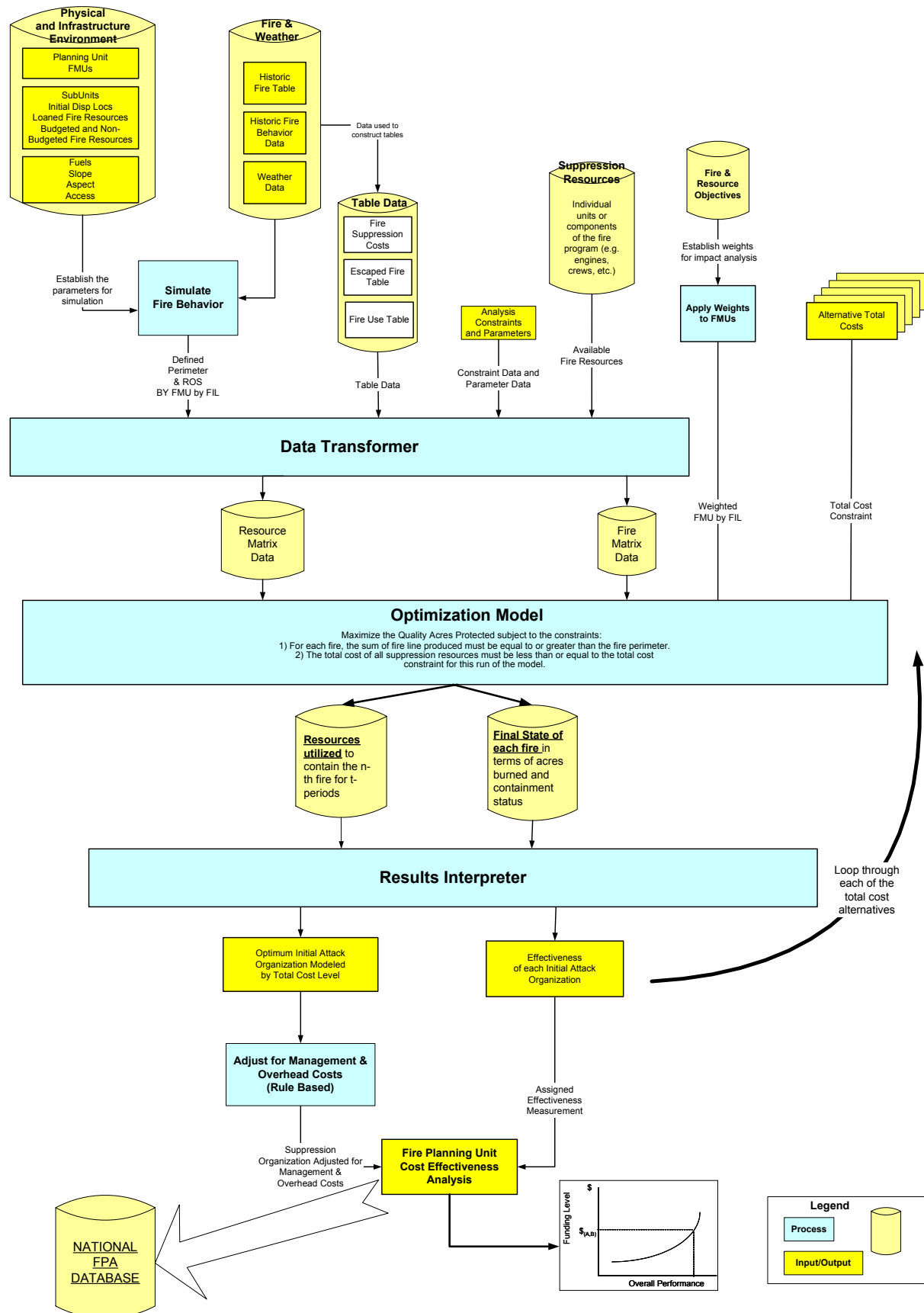


FPA System Preparedness Module - Vision



FPA System Preparedness Module - Vision

FPA System Preparedness Model Vision Diagram Descriptions	
Diagram Reference	Definition/Description
Access	The mode of transportation (walk-in, drive-in, fly-in) required to get to a Fire Management Unit.
Adjust for Management and Overhead Costs (Rule Based)	The process of using pre-defined rules to adjust suppression organizations to include overhead and management costs.
Alternative Total Costs	A range of dollar values over which the analysis will be run, expressed as the lower limit, upper limit and interval.
Analysis Constraints and Parameters	The analysis constraints are the restrictions that are applied to the planning analysis, such as no mechanized equipment in wilderness areas. The analysis parameters are the miscellaneous base data that is needed by the analysis, such as length of time period, number of periods until a fire is considered
Apply a Weight for each FMU by FIL based on Objective(s)	The process of setting a weight for each FMU by FIL, based on management objectives. Weights reflect the relative importance of protecting acres in the FMU from wildfire.
Aspect	The direction a slope faces, in relation to the points of the compass.
Budgeted Fire Resources	A category of fire protection forces available for initial attack that must be included in the budget for at least one of the agencies within the fire planning unit.
Data Transformer	Procedures that calculate data needed by the optimization model based on basic environmental, infrastructure and suppression resource data. Technically referred to as the "Optimization Matrix Generator".
Effectiveness for each Initial Attack Organization	The measure of effectiveness (Quality Acres Protected) for each initial attack organization at a single associated total cost level.
Escaped Fire Table (EFT)	A table of the final estimated size of fires that are not contained by the simulation model (exceeded time or size constraints). The EFT is developed from historical large fire data for the Fire Planning Unit. Sizes may be defined for each FMU and each Fire Intensity Level.
Fire and Resource Objectives	Planned results to be applied to accomplish a fire management goal (e.g., to reduce the impact caused by unwanted wildland fire by x% over y years). An objective creates a standard that can be measured and evaluated.
Fire Intensity Level (FIL)	A measure of fire behavior based on flame length.

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FPA System Preparedness Model Vision Diagram Descriptions	
Diagram Reference	Definition/Description
Fire Management Unit (FMU)	An FMU is any land management area definable by objectives, management constraints, topographic features, access, values to be protected, political boundaries, fuel types, major fire regime groups, and so on, that set it apart from the management characteristics of an adjacent FMU. The FMUs may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives. The development of FMUs should avoid redundancy. Each FMU should be unique as evidenced by management strategies, objectives and attributes.
Fire Matrix	Attributes of each fire in terms of cumulative perimeter and area by time period as well as the objective function weight by time period.
Fire Planning Unit (FPU)	The geographic scope of the landscape defined for the fire management analysis. Fire Planning Units may relate to a single administrative unit, a sub-unit, or any combination of units and sub-units. Fire Planning Units are scalable, and may be contiguous or noncontiguous. Fire Planning Units are not predefined by the Agency administrative unit boundaries, and may relate to one or more agencies. They may be described spatially. A Fire Planning Unit consists of one or more Fire Management Units.
Fire Planning Unit Cost Effectiveness Analysis	The aggregation of all the effectiveness measures across all total cost levels.
Fire State	The results of the optimization model in terms of the final size of each fire and whether the fire was contained or not.
Fire Suppression Costs	The emergency suppression costs for both escaped and non-escaped fires based upon the final contained fire size. For non-escaped fires, Fire Suppression Cost is used to represent direct fire related costs incurred after containment. For escaped fires, Fire Suppression Cost is the sole determinant of the total suppression cost. Note: Known in IIAA as average acre costs.
Fire Use Table	An unplanned but desirable fire (ignition), with no attack necessary. There is still a cost, but a different mix of resources is required.
Fuels	All dead and living material that will burn.

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FPA System Preparedness Model Vision Diagram Descriptions	
Diagram Reference	Definition/Description
Historic Fire Behavior Data (FBD)	A table of numbers of fires and 50 th and 90 th percentile rates of spread for each Fire Intensity Level. It is used in IIAA in the simulation of fire occurrence and behavior. The FBD is developed from historic fire occurrence and fire weather data for each Fire Management Unit.
Historical Fire Table (HFT)	The tabulation of historical numbers of fires and rates of spread by size and intensity for the Fire Planning Unit.
Initial Dispatch Location	The designated headquarters, station, or point representing a more generalized location that is used as the dispatch point for initial attack resources, and from which travel distances to FMUs are measured.
Loaned Fire Resources	A category of fire protection forces available for initial attack that are not part of the Fire Planning Unit organization. The agencies that provide these resources are often referred to as cooperators.
National FPA Database	The FPA database that contains the analysis results for all planning units by agency by budget year. The database is used to make budget allocation decisions at the national level.
Non-budgeted Fire Resource	A category of fire protection forces available for initial attack that are not included in the budget for each agency within the fire planning unit.
Optimization Model	Maximizes effectiveness in terms of Quality Acres Protected (QAP) subject to total cost constraints and fire containment constraints.
Optimum Initial Attack Organization modeled by Total Cost Level	The initial attack organization that will maximize effectiveness at the assigned total cost.
Physical and Infrastructure Environment	The physical characteristics of the Fire Planning Unit; a description of existing conditions.
Rate of Spread (ROS)	The fire spread rate in chains per hour for up to six Fire Intensity Levels. (The number of FILs that any set of fire behavior data will have is determined by the fuel model and the weather used in the calculation.)
Resource Matrix	Attributes of each resource associated with each fire in terms of cumulative production rate (expressed in total chains), fixed cost, and variable cost by time period.
Resources Utilized	The results of the optimization model in terms of the final size of each fire and whether the fire was contained or not.
Results Interpreter	Calculates relevant information based on the results of the optimization model (Resources Utilized and Fire State) and basic data inputs.

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FPA System Preparedness Model Vision Diagram Descriptions	
Diagram Reference	Definition/Description
Simulate Fire Behavior	The process of calculating the Rate of Spread (ROS) and FIL by time period for a fire within an FMU based on historic fire data (fuel, weather, topography).
Slope	The natural incline of the ground, measured in percent of rise over run. A factor used to determine ROS and may be a limiting factor for deploying mechanized equipment.
Sub-Unit	A portion of an administrative unit, such as a Ranger District, of the Fire Planning Unit. Sub-units are optional, and can be used for accounting purposes; they are not used in the analysis itself.
Suppression Resources	The individual units or components of the fire program (engines, crews, air tankers, administration, fire management officers, etc.) that are available to the initial attack model, together with their production rates, speeds, unit mission costs, and other fire-fighting characteristics. Suppression resources are categorized by budgeted, non-budgeted and loaned.
Total Cost Constraint	A fixed dollar amount that represents the upper limit of total cost allowed for a given optimization run. A series of optimizations will be run over the range of alternative total costs.
Weather Data	Archived weather observations that are input to the fire behavior simulator. Weather records are typically extracted from the National Interagency Fire Management Information Database (NIFMID). Fire records are agency-specific, and are retrieved for use according to local agency guidelines. Weather data, together with algorithms from the National Fire Danger Rating System (NFDRS) are utilized to calculate fuel moistures and fire behavior indices.